Forage Harvest Management - 511

Minnesota EQIP Organic Initiative Job Sheet

Definition

The timely cutting and removal of forages from the field as hay, green-chop or ensilage.

Purpose

This practice is used to 1) optimize the quantity and quality of forage at desired levels, 2) promote vigorous plant re-growth, 3) maintain stand life, 4) manage for desired species composition, 5) use forage plant biomass as a soil nutrient uptake tool, 6) control weeds, insects, and disease, and 7) maintain or improve wildlife habitat. This includes timing harvest for the best stage of plant growth, maintaining adequate stubble height after cutting, supplying nutrients to maintain healthy, productive stands and controlling the invasion of undesirable weeds and brush.

Where used

This practice applies to all land uses where machine harvested forage crops are grown, including seeded hayland (such as alfalfa, alfalfa-grass mixes and clover-grass mixes), native grass/sedge meadows, rangeland harvested for hay, corn harvested for silage, and summer annual forages such as sorghum, sudangrass, millet, and sorghum sudangrass hybrids.

Resource management system

Forage harvest management is normally established as part of a conservation management system to address the soil, water, air, plant, animal, and human needs as related to the owner's goals and objectives. It is important to consider the conservation crop rotation, nutrient and pest management, livestock forage and grazing requirements, agricultural waste utilization (if applicable), wildlife habitat needs, and other conservation practices, when designing management of forages.

Criteria

Requirements of the National Organic Program will be followed for the implementation of the practice. For organic operations, follow the same criteria as non-organic other than as follows:

1. Do not plan the use of forage preservatives or forage enhancers, e.g., non-protein nitrogen additions
2. Apply organic nutrients to increase forage yields. Use only approved nutrient sources per NOP Section 205.

3. Harvest at the proper stage of maturity for planned quality and quantity by forage species.
4. Harvest hay at a frequency and height to maintain healthy plants, to lessen incidence of disease, insect damage, and weed infestations.
5. Timing of Forage harvest may be altered from recommendations when all other pest management practices and techniques or action have been exhausted in order to control forage pests and preserve the forage stand. Maintain a proper balance of nutrients in the soil to reduce potential hazards from plant toxicity. Follow industry and University of Minnesota Extension recommended standards for forage harvest timing and preservation.

Forage will be harvested at a frequency and height that will maintain a desired healthy plant community. This will be at the state of maturity that provides the desired quality and quantity.

Delay harvest if prolonged or heavy precipitation is forecast that would seriously damage cut forage.

Base harvest of mixed grass-legume stands on the state of maturity for legume forage quality except for trefoil, ladino and white clover. For these, base harvest on the grass component state of maturity.

Considerations

Forage harvest management can enhance wildlife objectives depending on the vegetative species used and management practiced. Consider using species that can provide food and cover for important wildlife. Delay harvest until after nesting season if practical.

Certain forages may be toxic for some types of livestock. Likewise improperly harvested and stored forage can result in good quality forage becoming potentially toxic. Livestock should only be fed forage from known species that is determined to be good quality. Forage that has been stored for a lengthy period of time can be tested to determine its' feed value.

See practice standard 511, forage Harvest Management for additional considerations.

Operation and Maintenance

Before harvest, clear fields of debris that could damage machinery or if ingested by livestock, lead to sickness (for example, hardware disease) or death.

Operate all forage harvesting equipment at the optimum settings and speeds to minimize loss of leaves. Set shear-plate on forage chopper to the proper theoretical cut for the crop being harvested. Keep knives well sharpened. Do not use re-cutters or screens unless forage moisture levels fall below recommended levels for optimum chopping action.

Regardless of silage/haylage storage method, ensure good compaction and an airtight seal to exclude oxygen and mold formation.

Fall grazing, hay or silage harvest is not recommended in perennial forages to maintain stand productivity. However, if hay lands are fall grazed or mechanically harvested, this should be delayed until after a killing frost. See Conservation Practice Standard 528, Table 1, for recommended stubble heights of perennial forages prior to a killing frost.

Additional requirements:

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Landowner_____ Planning Unit_____

Purpose (check all that apply)	
☐ optimize the quantity and quality of forage	☐ promote vigorous plant re-growth
☐ maintain stand life	☐ manage for desired species composition
☐ use forage plant biomass as a soil nutrient uptake tool	☐ control weeds, insects, and disease
☐ Provide wildlife food and cover	☐ Other:

Layout	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
Key Species						
Maturity stage						
First Cutting (Month)						
Harvest Interval						
Subsequent Cuttings (Month)						
Moisture Content for cutting and baling						
Cutting Height						
Stubble Height						

Soil Fertilization and Amend.	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
Soil Analysis (N-P-K) (date)						
N-Fertilizer Application (Lb./Ac.)						
P205 Fertilizer Application(Lb./Ac.)						
K20 Fertilizer Application(Lb./Ac.)						
Other Amendments Applied						

☐ **Wildlife Habitat**

To provide suitable habitat for _____ wildlife specie(s) the following harvest schedule(s), cover patterns, and plant height to provide suitable habitat for the desired specie(s) should be maintained:

(Specify in space provided below)

Other relevant information, complementary practices and measures, and additional specifications may be included.

Additional Specifications and Notes:

Approvals:

_____ _____

Planner/Designer **Date**

Certification:\

I hereby certify that this practice has been installed in accordance with NRCS standards and specifications.

_____ _____

Producer **Date**

Harvest Guidelines for some species

Species	Cutting Time - First	Cutting Time - Subsequent	Cutting Height (inches)
Alfalfa	Late bud to early bloom	10% bloom. Maintain a 30-day interval between the last cutting and the first killing frost.	2
Alsike & Red Clover	¾ bloom to full bloom	Same	2
Sweetclover	Bud to early flower	Same	3
Smooth Brome, Intermediate and Pubescent wheatgrass, Timothy, Creeping Foxtail, Bluegrass, Redtop	Medium to full head	When basal sprouts appear	3
Orchardgrass	Boot to early heading,	When regrowth is 14 – 20 inches	3
Birdsfoot Trefoil	Early flower to ¼ bloom	When 8 – 12 inch regrowth has occurred but 4-6 weeks before killing freeze	3-4
Switchgrass and Big Bluestem	One Cut System: at heading Two cut system: at boot or early heading	Two cut system: August	6